

## WHAT IS CLAIMED IS:

1. A complex of an amphiphilic copolymer with a bioactive agent, wherein the amphiphilic copolymer has benzoyl sulfonic acid groups on the hydrophobic segment  
5 of said copolymer

2. The complex according claim 1 forms micelles in aqueous media.

3. A complex according to claim 1, wherein the amphiphilic copolymer is comprised of a hydrophilic polymer selected from the group consisting of: a  
10 polyalkylether, dextran, dextran, carboxymethyldextran, dextran sulfate, aminodextran, cellulose, carboxymethyl cellulose, chitin, chitosan, succinyl chitosan, carboxymethylchitin, carboxymethylchitosan, hyaluronic acid, a starch, an alginate, chondroitin sulfate, albumin, pullulan, carboxymethyl pullulan, polyglutamic acid, polylysine, polyaspartic acid, HPMA, styrene maleic anhydride copolymer, divinylethyl  
15 ether maleic anhydride copolymer, polyvinyl pyrrolidone, and polyvinylalcohol.

4. A complex according to claim 1, wherein the ampiphilic polymer is a block copolymer made of hydrophilic and hydrophobic polymers.

5. A complex according to claim 4, wherein the hydrophilic polymer is polyoxyethylene glycol, polyoxypropylene glycol, polyoxyethylene/propylene glycol, dextran, carboxymethyldextran, dextran sulfates, aminodextran, cellulose, carboxymethyl cellulose, chitin, chitosan, succinyl chitosan, carboxymethylchitin, carboxymethylchitosan, hyaluronic acid, a starch, an alginate, chondroitin sulfate,  
20 albumin, pullulan, carboxymethyl pullulan, polyglutamic acid, polylysine, polyaspartic acid, HPMA, styrene maleic anhydride copolymer, divinylethyl ether maleic anhydride copolymer, polyvinyl pyrrolidone, and polyvinylalcohol.  
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6. A complex according to claim 5, wherein the hydrophilic polymer is  
30 polyethylene glycol.

7. A complex according to claim 6, wherein the polyethylene glycol has a molecular weight of about 1000-10000

8. A complex according to claim 1, comprising a hydrophobic polymer, wherein the hydrophobic polymer is selected from a poly(alpha-hydroxy acid), polydioxanone, a polycarbonate, a polyanhydride, a polyorthoester, and a hydrophobic derivative of a poly(alpha-amino acid).

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9. A complex according to claim 8, wherein the hydrophobic polymer is polylactic acid.

10. A complex according to claim 1, wherein the bioactive agent is selected from the group consisting of topotecan, doxorubicin, adriamycin, vincristine, cisplatin, and a combination thereof.

11. A complex according to claim 1, wherein the bioactive agent is topotecan.

15. 12. A method of treating a cancer comprising administering an effective amount of the complex according to claim 1 to a patient in need thereof.

20. 13. A method of treating osteo arthritis, rheumatoid arthritis, diabetic retinopathy, hemangiomas or psoriasis comprising administering an effective amount of the complex according to claim 1 to a patient in need thereof.

25. 14. A complex of an amphiphilic copolymer with a contrast agent, wherein the amphiphilic copolymer has benzoyl sulfonic acid groups on the hydrophobic segment of said copolymer.

15. A method of diagnostic imaging comprising administering an effective amount of the complex according to claim 14 to a patient in need thereof.

30. 16. A process of making an amphiphilic copolymer having benzoyl sulfonic acid groups by reacting the amphiphilic copolymer with sulfobenzoic anhydride either in the melt or in solution.